Analysing the Public Transport Passenger Satisfaction in Abbottabad

Muhammad Atiullah Saif [1], Abdul Haseeb [2] and Uzair Malik [2]

1. Corresponding Author: Lecturer, Department of Civil Engineering, COMSATS University Islamabad, Abbottabad Campus, Pakistan
   Email: atiullah@cuiatd.edu.pk
2. Undergraduate student, Department of Civil Engineering, COMSATS University Islamabad, Abbottabad Campus, Pakistan

Abstract

Passenger satisfaction is considered as one of important factor to shift the commuters from the private transport to public transport. Recent estimations show that the mode share of public transport in metropolitan cities in Pakistan ranges between 16% to 20% and the situation is more critical in other cities. This paper provides the subjective evaluation of the public transport system by means of satisfaction in the Abbottabad city, Pakistan. Research designed a questionnaire and field survey was conducted to evaluate the responses of public transport passengers. Nineteen service attributes regarding public transport service attributes were investigated in the survey. The results indicated that passenger's satisfaction from the overall quality of public transport system and nineteen explanatory variables. The findings of this paper draw the attention of government authorities and service provider towards the performance indicators where the satisfaction lag and that need to be improved to shift the modal ship towards public transportation.

Keywords: Public transport, Passenger Satisfaction, Travel Behaviour, Regional Survey.

1. INTRODUCTION:

Transportation is considered as one of the most significant elements of urban sustainability. Efficient transportation networks have direct impact on the public behaviour and travel patterns, adjoining environment, business activities and national economic growth ((Saif et al., 2018), van Lierop et al., 2018, Wilcox et al., n.d.). However, with rapid urbanization and increasing traffic, cities have become more congested, denser and followed by the incessantly increasing traffic problems (Hoor-Ul-Ain, 2019). A recent study by Errampalli estimated the causes of green-house effect and found that 23% of the greenhouse gases are produced by transport industry and about three fourth of which is generated by vehicles emissions causing half million people causalities (Errampalli et al., 2018).

Public transport plays an important role in the overall success of a city's transportation system. It enhances the mobility and provide access to employment, community resources, education, health and recreational opportunities to public ("The Importance of transit," n.d.). Public transportation also helps to reduce road congestion and travel times, air pollution, and energy and oil consumption (Chapman, 2007).

In undeveloped countries of the world, commuter prefer to use private vehicles instead of public transport due to inadequate public transport networks and due to lack of satisfaction from the service attributes (Irtema, Ismail, Borhan, Das, & Alshetwi, 2018, F. Rahman, 2015, Nguyen, 2019). Pakistan is one of those countries without a well-organized, properly scheduled public transportation system. It is a well-known fact that Public transport service is moderate in Pakistan. There is a space to take effective measure to enhance the service quality as the study revealed that almost 70% population uses the public transport for intracity travel (Khurshid & Naeem, 2012). Therefore, it is important to ensure well-organized, properly scheduled public transportation system to accommodate the growing population.

In terms of public transport, customer satisfaction is defined as the general level to which the expectation of traveller is meet fully with perceived quality and it is the result of single or collective experiences (Tyrinopoulos & Antoniou, 2008). Enhancing service quality of public transport is very important to retain customer satisfaction (F. Rahman, 2015). A study by Smith has shown that quality of service has a profound influence on customer satisfaction or customer loyalty. Customer satisfaction in transportation is a tool used in a decision, addressing the goals, making justification of resources (Smith, 2010). It is the apparent assessment of product or service (Leem and Yoon, 2004). An empirical analysis revealed a positive relationship between customer satisfaction and service quality in public transport sector of Pakistan (Khurshid & Naeem, 2012).

This research aims to find the gap among the ideal and current scenario of public transport passenger satisfaction by recording the responses from public transport users in city of Abbottabad, Pakistan. Research also aims to find the attributes or explanatory variables that are imparting externalities gap among planned and perceived efficiency of transit system.

2. EXPERIMENTAL PROCEDURES:

Public transport plays a key role in development of city. People use dissimilar modes of transport according to their movability needs. Passengers choice of selecting a specific public transport depends on different factors such as comfort, vehicle travel time, safety etc. Numerous study have found the important service attributes of passenger satisfaction i.e. Waiting time ,cleanliness, seats availability, services at bus stop, seats for females, Driver behaviour and skills, fares(Khurshid et al., 2012), seat availability, travel stability,

wait time, Driver attitude, ease of boarding and alighting, Travel time and reliability, The condition of stations or stops (Wong et al., 2017), Platform infrastructure, cleanliness, safety, security, catering and drinking water facility, washroom, toilets and other passenger amenities, stairs/escalators (Ghosh et al., 2017), Accessibility, information, comfort, security, environmental impact, availability, time, customer care (Trompet et al., 2013), Availability of parking space, Traffic congestion, Travel distance and time, fare, accessibility, services frequency, crowding (Tyrinopoulos and Antoniou, 2013). In Abbottabad city major mode of public transport is Suzuki, Carry dabba/carrydhaba, Wagon and others. Suitable Service attributes were selected for measuring passenger satisfaction of Abbottabad city is regarding to fares, driver behaviour, driver driving skills, walking time to access the P.T, Service frequency of vehicles, cleanliness of vehicles, service frequency, enough seats are available, ease of getting on/off from the vehicles, Roads are uncongested and clear, safety in vehicles during evening/night, waiting time, seats are comfortable, vehicles never breakdown on road.

This research developed questionnaire on five-point Likert Scale. Sample size was calculated by using Solvin formula ($n=N/ (1+Ne^2)$) and by taking confidence level of 95%, Z-score of 1.96 and marginal error of 3.3% for 1.3 million population of Abbottabad. Research recorded 710 responses from commuters.

3. DATA RESULTS:

The results of the research unveil the subjective evaluation of transport system in Abbottabad. The research collected the demographical as well as the satisfaction for nineteen explanatory variables to find the important attributes of transit system on likert scale. Figure 1 and Figure 2 shows the demographic statistics of the recorded data. Figure 1 illustrates that the 49.8% of the respondents belongs to age groups of 18-30 years, age group <18 years have 25.49 % participation in 710 respondents. Figure 2 explain the division of respondents based on their profession where the recorded proportion of students was the major proportion in survey and comprises of about 54.37% and least is Unemployed which is 4.23%. As most of businessman use mostly their own vehicle and their percentage in graph is less which is 8.87%.
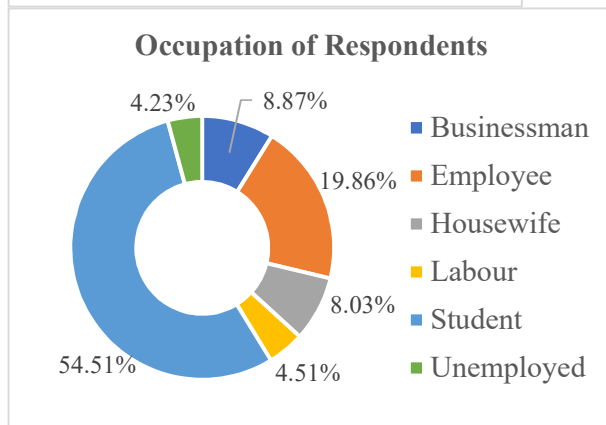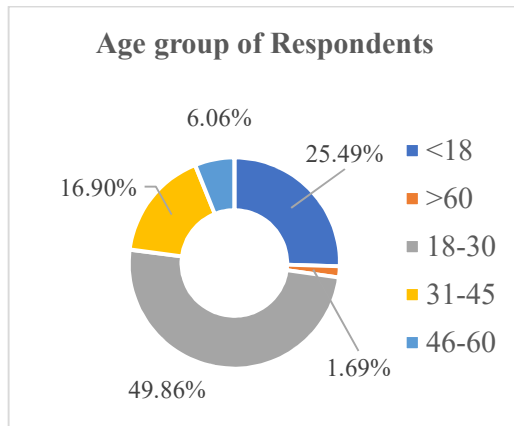
Figure 1: Age group of survey respondents

Figure 2: Occupation of survey respondents

Table 1 reveals the detailed demographic profile of the collected survey responses

Table 1: Demographic profile of respondents

Personal characteristics	Number of respondents	Personal characteristics	Number of respondents
Gender		**Public transport usage**	
Male	399	Suzuki Van	378
Female	309	Carry Dabba	150
Others	2	Wagon	57
		Other	125
Age group		**Factor important for journey**	
< 18	181	Cost	113
18-30	354	Time	454
31-45	120	Accessibility	57
46-60	43	Reliability	66
>60	12		
Education		**Time to access nearby public transport**	
Primary	44	< 5 min	205
Matric	232	5-10 min	372
Graduation	227	>10 min	132
Master	165		
Illiterate	42		

Occupation		Public transport used in a week	
Student	387	<5 times	299
Employee	141	5-10 times	254
Labor	32	>20 times	157
Businessman	63	**Frequent point of destination**	
Housewife	57	Work	182
Unemployed	30	Educational institute	307
		Shopping	89
		Other	131

Figure 3 is illustrating the frequently used public transportation mode in Abbottabad city. As pink bus service has started its operation after the survey data collection, therefore bus service was not among available mode of intracity public transportation in Abbottabad city. Evident from graph that Suzuki van is major public transport mode in Abbottabad which is 53.24% and second major mode is Carry dabba which is 21.13%. It was interesting to find that Careem service is dominant demand responsive public transportation as respondents mentioned for their preference in comments. Nevertheless, Careem in others option as the demand responsive public transport was not the scope of the study. It is interesting to compare the results of this study with a similar study in Amman where author revealed the public transport satisfaction for bus, mini buses and jitneys against nine service attributes and identified similar deficiencies (Imam, 2014).
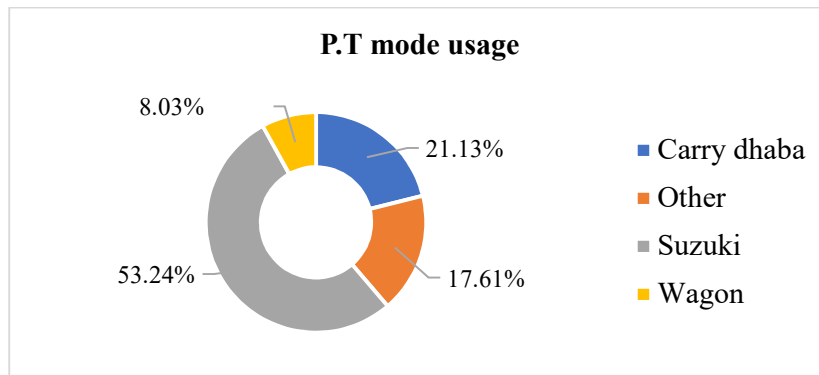
3.1 Respondents opinions towards the sevice attributes:
Views about the service attibutes of public tansport of Abbottabd city is presebted in table
Table 2: Respondents opinions towards the sevice attributes

Sr.#	How much you are satisfied with following	Very Dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Very Satisfied (%)
1	Fares/ticket	8.73	23.52	21.41	40.56	5.7
2	Walking time	5.7	23.52	21.97	47.89	7.61
3	Service frequency	5.21	22.68	22.48	37.89	7.75
4	Waiting time	5.63	24.23	24.37	38.87	6.90
5	Vehicles travel time	12.11	32.82	23.46	27.46	3.94
6	Ease boarding	13.94	31.41	20.85	29.86	3.94
7	Seats comfortability	19.01	32.39	21.41	22.25	4.93
8	Leg space	24.51	37.32	17.61	16.62	3.94
9	Seat availability	15.35	30.70	23.10	24.08	6.76
10	Vehicles cleanliness	17.75	27.32	25.49	21.97	7.46
11	Vehicle breakdown	9.30	20.42	33.42	29.86	6.90
12	Fatigue	14.08	35.07	24.79	21.55	4.51
13	Driving skills	14.79	28.59	24.79	25.21	6.62
14	Diver behaviour	16.48	26.06	26.34	24.08	7.04
15	Dropoff efficiency	7.04	16.76	20.42	42.82	12.96
16	Security at night	12.11	19.30	23.94	35.07	9.58
17	Route availability	6.76	20.70	24.79	35.92	11.83
18	Roads congestion	31.41	34.79	18.45	11.13	4.23
19	Overall quality of public transport	8.45 %	33.56 %	31.97%	6.90%	2.11%

It is interesting to see that more than 73% of the survey respondents are not satisfied with the overall satisfaction of public transport. Moreover, the extreme dissatisfaction from the service attribute can be seen where more than 84% of the respondents are not satisfied with the continuous flow of public transport service because of the road congestion. Likewise, similar trend can be seen for the service attribute of public transport causing fatigue, poor cleanliness, poor leg space available and travel time. This study provides an ample opportunity for the transport operators to focus on the lagging service attributes of the transit system to attract more passengers from private transportation. Considering the aforementioned, it should also be highlighted that not just the performance of available public transport infrastructure, but the passenger preferences should be considered while planning the public transport facilities.

4. CONCLUSIONS:

Systematic flow of public transport is a vital factor for development of any sustainable city. This research reveals the philosophy of externalities in transport system and discloses one of two important perspective of accessing the efficiency. Though conversional planning practices focuses on the infrastructural, supply & demand, cost effectiveness in terms of fair box ratio, accessibilty and relevant traits of urban transport systems but the second perspective in terms of perceived quality is usually ignored. Manifestation of the results give us a clear portrayal of usefulness of perceived satisfaction by the users of transport system.

Furthermore, from the aforementioned results, it can be concluded that that there is serious

need of improvement in public transport in Abbottabad. As the Suzuki vans are the major public transport mode and major cause of traffic congestion, traffic law enforcement and the traffic management require a serious attention to make Abbottabad a liveable community and a sustainable city.

ACKNOWLEDGEMENTS:

REFERENCES:

Chapman, L. (2007). Transport and climate change: a review. Journal of Transport Geography, 15(5), 354–367.

F. Rahman. (2015, IICSD). DUETFinal-IICSD-2015.pdf. Department of Civil Engineering DUET - Gazipur, Bangladesh.

Hoor-Ul-Ain, S. (2019). An empirical review of Karachi's transportation predicaments: paradox of public policy ranging from personal attitudes to public opinion in the megacity. Journal of Transport & Health, 12, 164–182.

Imam, R., (2014). Measuring Public Transport Satisfaction from User Surveys. International Journal of Business and Management 9.

Irtema, H. I. M., Ismail, A., Borhan, M. N., Das, A. M., & Alshetwi, A. B. Z. (2018). Case study of the behavioural intentions of public transportation passengers in Kuala Lumpur. Case Studies on Transport Policy, 6(4), 462–474.

Khurshid, R., & Naeem, Dr. H. N. (2012). service quality and customer satisfaction in public transport sector of pakistan: An Empirical Study. International Journal of Economics and Management Sciences, Vol. 1.

Leem, C.S., Yoon, Y. (2004). A maturity model and an evaluation system of software customer satisfaction: The case of software companies in Korea. Industrial Management & Data Systems 104 (4): 347–54.

Nguyen, X. P. (2019). the bus transportation issue and people satisfaction with public transport in ho chi minh city. Journal of Mechanical Engineering Research and Developments, 42(1), 10–16.

Saif, M.A., Zefreh, M.M., Torok, A., 2018. Public Transport Accessibility: A Literature Review. Periodica Polytechnica Transportation Engineering.

Smith, M. (2010). Improving customer satisfaction in transportation decision making. Georgia Institute of Technology.

The Importance of transit. (n.d.). In Status of the Nation's Highways, Bridges, and Transit: 2004 Conditions and Performance.

Tyrinopoulos, Y., & Antoniou, C. (2008). Public transit user satisfaction: Variability and policy implications. Transport Policy, 15(4), 260–272.

van Lierop, D., Badami, M. G., & El-Geneidy, A. M. (2018). What influences satisfaction and loyalty in public transport? A review of the literature. Transport Reviews, 38(1), 52–72.

Wilcox, Z., Nohrovà, N., & Bidgood, E. (n.d.). Making transport work for cities. 40.